

# Radiation Hardened High Speed Fiber Optic Transceivers for Extreme Environments, Phase II

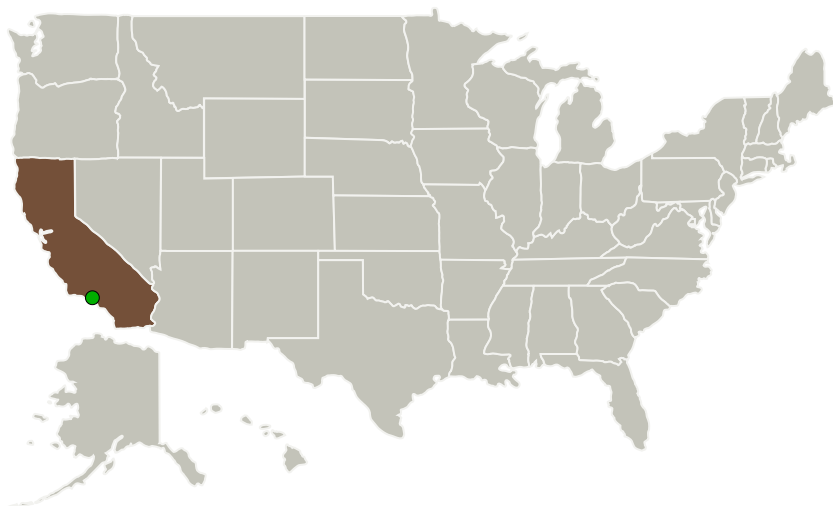
Completed Technology Project (2012 - 2014)




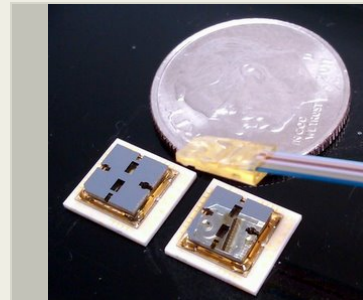
## Project Introduction

This program develops fiber optic transceivers that offer wide bandwidth (1 Mbps to 10 Gbps) and operate in space environments targeted by NASA for robotic exploration. These environments require components that can operate over a much wider temperature range than available with commercial fiber optic technology. The goal of this research is to develop a process platform to create fiber optic components that operate in the space environment (radiation, temperature, vibration, etc.) and leverage commercial performance/protocols for data transmission. Our overall goal is to create the market availability of space fiber optic transceivers for backbone data communications operating on standard protocols. This will eliminate current cycle of NRE-funded transceiver developments. This is opportunity to provide significant government savings, and reduce risk and associate programs delays that occurred with highly customized fiber optic development.

## Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Ultra Communications	Lead Organization	Industry	Vista, California
 Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California



Radiation Hardened High Speed Fiber Optic Transceivers for Extreme Environments Project Image

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## Primary U.S. Work Locations

California

## Project Transitions



**April 2012:** Project Start

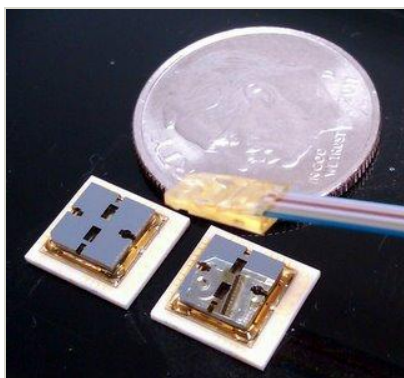


**April 2014:** Closed out

### Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/138438>)

## Images



### Project Image

Radiation Hardened High Speed  
Fiber Optic Transceivers for  
Extreme Environments Project  
Image

(<https://techport.nasa.gov/image/128856>)

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission  
Directorate (STMD)

### Lead Organization:

Ultra Communications

### Responsible Program:

Small Business Innovation  
Research/Small Business Tech  
Transfer

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

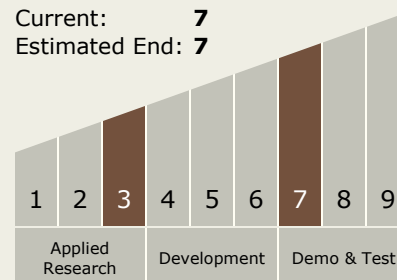
Carlos Torrez

### Principal Investigator:

Charles Kuznia

## Technology Maturity (TRL)

Start: 3  
Current: 7  
Estimated End: 7



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## Technology Areas

### Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
  - └ TX05.5 Revolutionary Communications Technologies
    - └ TX05.5.3 Hybrid Radio and Optical Technologies

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System